PATENT COOPERATION TREATY



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTIO		cation of Transmittal of International				
D80273PC		Premimary	Examination Report (Form PCT/IPEA/416)				
International application No.	International filing date (da	• •	Priority date (day/month/year)				
PCT/EP2003/011828	24 October 2003 (24		25 October 2002 (25.10.2002)				
International Patent Classification (IPC) or n C08J 7/12	ational classification and IPC		•				
Applicant	STOCKHAUSEN	GMBH	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
 This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36. This REPORT consists of a total of 5 sheets, including this cover sheet. 							
	r this report and/or sheets cor Administrative Instructions u	taining rectificander the PCT).	on, claims and/or drawings which have been tions made before this Authority (see Rule				
3. This report contains indications related	ing to the following items:						
I Basis of the report							
II Priority	,						
III Non-establishment o	of opinion with regard to nov	elty, inventive st	ep and industrial applicability				
IV Lack of unity of invention							
Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement							
VI Certain documents cited							
VII Certain defects in th	e international application						
VIII Certain observations on the international application							
Date of submission of the demand	Dat	of completion	of this report				
29 April 2004 (29.04.2	2004)	. 16	July 2004 (16.07.2004)				
Name and mailing address of the IPBA/EP	Aut	norized officer	·····				
Facsimile No.	Tele	phone No.					



International application No.

PCT/EP2003/011828

I.	Basis	of the re	report	
1.	With	regard to	to the elements of the international application:*	
		the inte	ternational application as originally filed	
	$\overline{\boxtimes}$	the des	scription:	
		pages	1-56	, as originally filed
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		_	ence listing part of the description:	
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		pages	, filed with the letter of	
2.	the in	nternation se element the lang the lang	nguage of a translation furnished for the purposes of international search (under Rule 23.1(b)). nguage of publication of the international application (under Rule 48.3(b)). nguage of the translation furnished for the purposes of international preliminary examination (which is:
3.	With preli	regard	to any nucleotide and/or amino acid sequence disclosed in the international applicati examination was carried out on the basis of the sequence listing:	on, the international
		contain	ined in the international application in written form.	
		filed to	ogether with the international application in computer readable form.	
		furnish	hed subsequently to this Authority in written form.	
		furnish	hed subsequently to this Authority in computer readable form.	
		The sta	statement that the subsequently furnished written sequence listing does not go beyond the ational application as filed has been furnished.	he disclosure in the
			tatement that the information recorded in computer readable form is identical to the written furnished.	sequence listing has
4.			the drawings, sheets/fig	
5.			sport has been established as if (some of) the amendments had not been made, since they have to the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**	een considered to go
	in thi	icement s is report 10.17).	sheets which have been furnished to the receiving Office in response to an invitation under Arti- t as "originally filed" and are not annexed to this report since they do not contain ame	cle 14 are referred to ndments (Rule 70.16
		-	nent sheet containing such amendments must be referred to under item 1 and annexed to this repo	rt.
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In ational application No.
PCT/EP 03/11828

V.	Reasoned statement under Article 35(2) with regard to	novelty, inventive step or industrial applicability;
••	citations and explanations supporting such statement	

Statement · · ·	•	· · ·	
Novelty (N)	Claims	3-10, 13, 14, 22, 24	YES
• • • • • • • • • • • • • • • • • • • •	Claims	1,2,11,12,15-21,23,25-28	NO
Inventive step (IS)	Claims		YES
	Claims	1-28	NO
Industrial applicability (IA)	Claims	1-28	YES
	Claims		NO

2. Citations and explanations

Citations

D1: DE 35 03 458 A (ARAKAWA CHEM IND) 8 August 1985 (1985-08-08) (mentioned in the application)

D2: US-A-5 140 076 (HATSUDA TAKUMI ET AL)

18 August 1992 (1992-08-18) (mentioned in the application)

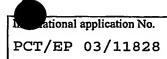
D3: EP-A-1 211 266 (BAYER AG)
5 June 2002 (2002-06-05)

D4: WO 01/13841 A (STOCKHAUSEN CHEM FAB GMBH; BREHM HELMUT (DE); HARREN JOERG (DE); I) 1 March 2001 (2001-03-01)

Novelty (PCT Article 33(2))

D1, example 1, describes a process containing the following steps:

- (i) treatment of cross-linked polyacrylic acid in powder form with silicon dioxide, corresponding to the claimed inorganic substance, and an aqueous ethylene glycol diglycidyl ether solution, corresponding to the claimed crosslinking agent, and
- (ii) heating the composition so obtained to 120°C



to produce further cross-linking of the polymer.

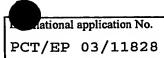
The product so obtained is used, for example, to produce diapers (page 3, line 18).

In step (i) the addition of ethylene glycol diglycidyl ether solution gives an aqueous solution of silicon dioxide and ethylene glycol diglycidyl ether. Thus, in this step polyacrylic acid powder is brought into contact with an aqueous solution of silicon dioxide and ethylene glycol diglycidyl ether. Consequently, this process step corresponds to the first step in the claimed process. In step (ii) the product so obtained is heated, which corresponds to the second step of the claimed process. Therefore, the process described in D1, like the claimed process, necessarily results in denser cross-linking of the external areas of the polyacrylic acid particles. Consequently, at least the subject matter of all the independent claims 1, 2, 11, 12, 15-21, 23 and 25-28 is not novel over D1.

D2 (column 1, lines 7-13, column 8, lines 62-67, column 9, lines 10-30, and example 4) discloses a process containing the steps:

- (i) contacting an absorbent resin powder with an aqueous solution of a cross-linking agent and an inorganic powder (E), and
- (ii) heating the product obtained so that the surface of the resin particles is subjected to secondary cross-linking.

Consequently, at least the subject matter of all the independent claims 1, 2, 11, 12, 15-21, 23 and 25-28



is not novel over D2.

D3 (example 1 and page 3, lines 44-48) discloses a process for the surface cross-linking of polyacrylic particles containing the steps:

- (i) contacting a hydrolysed polyacrylonitrile
 powder with a composition containing (a) water,
 (b) orthosilicic acid, corresponding to the
 claimed inorganic component, and (c)
 formaldehyde, corresponding to the claimed crosslinking agent, and
- (ii) heating the composition so prepared to 98°C.

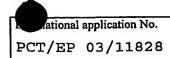
The product obtained is used to produce diapers (page 3, line 53).

Consequently, at least the subject matter of all the independent claims 1, 2, 11, 12, 15-21, 23 and 25-28 is not novel over D3.

D4 (example 4 and page 21, lines 25-28) discloses a process for preparing secondary cross-linked polyacrylates containing the steps:

- (i) addition of Flavith S 108, a silica-alumina suspension, to polyacrylate particles (back reference to example 2),
- (ii) admixture of an aqueous solution of ethylene carbonate, corresponding to the claimed crosslinking agent, and
- (iii) heating to 170°C.

Addition of the ethylene carbonate solution yields an aqueous solution containing ethylene carbonate



and silica-alumina particles, which are in contact with the polyacrylate particles. Thus, steps (i) and (ii) correspond to the first step of the claimed process. Consequently, at least the subject matter of all the independent claims 1, 2, 11, 12, 15-21, 23 and 25-28 is not novel over D4.

Inventive step (PCT Article 33(3))

It is not clear what problem is solved in a surprising manner in relation to the prior art by the dependent claims. Consequently, the subject matter of all the dependent claims 3-10, 13, 14, 22 and 24 at least lacks inventive step over the cited documents.

